



## UGANDA: First Production of LLINs

In its attempts to enable African net manufacturers to produce long lasting insecticide treated nets (LLINs) NetMark continued to ask the holders of LLIN technologies to develop business relationships with African companies. In early 2009, Clarke Mosquito Control of Chicago, Illinois expressed its willingness to sell its polyethylene LLIN netting to an African company that could guarantee high quality production. NetMark had been having ongoing discussions with two companies (Adami Tulu of Ethiopia and Coopers Ltd. of Uganda) on local stitching of LLIN netting. Adami Tulu Pesticides Processing Company had planned to construct a new building for an LLIN sewing and treatment operation; however, a large increase in local construction costs made it delay its plans. Coopers Ltd., however, was already in a partnership with Mosquito Net Village (MNV) of Uganda, a company that had been sewing nets for the last three years. Both companies had been searching for an LLIN capacity. They had hosted a factory visit by BASF and had carried out an industrial trial using treated polypropylene netting obtained from Sasol Ltd. of South Africa. Neither relationship, however, seemed likely to move ahead quickly. Therefore, NetMark suggested that Clarke should consider developing an agreement with MNV and Coopers. Clarke was willing to proceed if NetMark could assure them that this partnership was viable and would result in a high quality product.

**Visit:** AED arranged for one of its textile experts from Anovotek to make an assessment visit to MNV and Coopers to determine if they were capable of starting LLIN production and meeting the standards of Clarke. He also worked with them to develop a business plan that defined production costs and project potential sales and the overall financial feasibility of this proposed venture. He was joined by a senior staff member from Clarke. The visit confirmed the suitability and commitment of MNV and Coopers as potential partners for Clarke. Plans had already been drawn up for renovations that would create larger production areas with ventilation systems that would be suitable for the cutting and sewing of insecticide treated netting. The business plan outlined the cost of production and likely sales, and confirmed that LLIN production with Clarke netting was financially feasible. NetMark then facilitated the development of a Memorandum of Understanding among Clarke, MNV, and Coopers for the production of an LLIN to be made under the Clarke brand Duranet<sup>®</sup>, a WHOPEs-recommended LLIN. This meant that this LLIN would not have to seek a separate WHOPEs recommendation. Before the agreement was finalized and Duranet<sup>®</sup> production began, however, it was important



to conduct an industrial trial to determine if MNV could easily produce an polyethylene LLIN with its current staff and equipment that would meet the specifications and quality control standards of Clarke at a production rate that was profitable.

**Industrial Trial:** NetMark arranged for a shipment of Duranet® roll fabric to be sent to MNV, and an Anovotek engineer went to Kampala to oversee the trial where he was joined by a senior staff member from Clarke. MNV's equipment worked well with the polyethylene netting, and its staff adapted well to the new netting and assembly techniques.

**Training and Physical Layout:** Based on the success of the industrial trial, MNV, Coopers, and Clarke moved ahead with their partnership plans for full production. NetMark sent an Anovotek engineer and a specialist from the Textile Clothing Technology Corporation to train MNV staff and review the renovation of the physical plant to increase efficiency and ensure worker safety. The garment expert improved the time needed to sew an LLIN by two minutes and improved cost efficiency by showing MNV how the waste netting from the cutting stage could be used to form the support loops used to hang rectangular LLINs. A Clarke representative inspected the facility and was very pleased with the full commitment to quality control by MNV and Coopers. All of the renovations of the rooms and ventilation system had been completed on time for the industrial trial with more renovations planned following a successful outcome of the industrial trial.

**Final Steps:** An order for a full container of Duranet® roll fabric was placed so that full production could be started. MNV also ordered a new Philocraft spreading table with Eastman Falcon IV end cutter from a U.S. supplier that would make their production line faster and better. USAID/REDSO funds were used for the purchase of the table and end cutter, and to pay for 25% of the cost of the first shipment of netting as its contribution to helping these businesses expand. MNV and Coopers paid for all other costs such as renovations, staff, machinery, and utilities, and freight.



Duranet® production started in December 2009. Initial plans were to start producing 10,000 units a month and then gradually expand to 50,000/month by the end of 2010. Once production exceeds 50,000/month, the partners will decide on whether to start exporting some of its production to other countries in partnership with Clarke.